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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,286	12/20/2001	Yoshiaki Mori	P6495a	1796

20178 7590 10/18/2006

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EXAMINER

CHACKO DAVIS, DABORAH

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 10/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/026,286

Applicant(s)

MORI ET AL.

Examiner

Daborah Chacko-Davis

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1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-64 is/are pending in the application.
- 4a) Of the above claim(s) 23-64 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-22, are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0630044 (Okumura et al., hereinafter referred to as Okumura).

Okumura, in the abstract, in col 2, lines 24-57, in col 3, lines 14-58, in col 4, lines 1-56, discloses a pattern forming method of forming a mask having pattern forming openings (photolithographically formed photoresist pattern, reference 43, of figures 4A through 4D), immersing the substrate with openings to a predetermined solution to fill the opening with the material (solidified liquid pattern material, drying the liquid solution adhered onto the opening so as to form a layer in the opening, the SOG layer or SiO₂ layer is solidified, palladium layer (electrically conductive layer) formed in the openings), removing by etching the material adhered onto portions of the surface of the photoresist mask (not the material formed in the opening), performing a hydrophobic treatment (photoresist mask is also made hydrophobic), performing a baking treatment, immersing the substrate again to form another layer of the material in the openings (plural pattern material supply process, solidifying the material to form a layer, forming another solid glass layer), performing a photoresist mask removal process by ashing (including annealing, i.e., mask removal and annealing is performed simultaneously). Okumura, in

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col 2, lines 42-46, and in col 4, lines 34-56, discloses that photoresist pattern mask is hydrophobicized prior to forming the liquid material in the openings, and the removal process of material attempting to adhere on the mask surface is accomplished due to the imparted hydrophobicity (i.e., the surface of the photoresist mask will repel or dissipate in the solution or while removed the liquid material attempting to and/or adhered to the mask surface (while being immersed or removed out of the solution for further processing) (claims 1-22).

Response to Arguments

3. Applicant's arguments filed August 11, 2006, have been fully considered but they are not persuasive. The 102 rejection made in the previous office action (paper no. 0503) has been maintained.

A) Applicants argue that Okumura does not disclose that the claimed liquid pattern material itself be solidified to form a layer.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., liquid pattern material is solidified to form a layer) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

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B) Applicants argue that Okumura does not disclose forming an electrically conductive liquid pattern material in the openings in the mask as recited in claims 1, 4, and 7.

Okumura, in col 4, lines 42-50, discloses that the device with the photoresist mask pattern is immersed in a solution containing palladium and after immersing and plating the device is removed thereby forming in the openings an electrically conducting palladium layer which is no longer in solution (or liquid state) but solidified in the openings.

C) Applicants argue that Okumura does not disclose that the mask has hydrophobic properties at least on the surface for repelling the liquid pattern material.

See paragraph no. 2.

D) Applicants argue that Okumura does not disclose the two-step process of evaporation and annealing.

Okumura, in col 3, lines 16-32, discloses that spin-on-glass material is formed (spray or spin coating the spin-on-glass liquid material) in the openings of the photoresist mask, followed by baking. Baking involves evaporating as well as annealing, since baking involves heating to a high temperature.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daborah Chacko-Davis whose telephone number is (571) 272-1380. The examiner can normally be reached on M-F 9:30 - 6:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F Huff can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

dcd

October 14, 2006.



JOHN A. MCPHERSON
PRIMARY EXAMINER